

C05C-001/00 [2006 C - I R - -]; C05C-009/00 [2006 C - I R - -]

Abstract :

SU-499252 A

Noncaking urea fertiliser is prepd. by treating granule surfaces iwth finely dispersed oxalic acid suspn. The treatment uses 30-35% oxalic acid (0.1-1% wt. urea) at 90-100 degrees C. The formed oxalic-carbamide coating dissolves slowly and contains functional growth gps.

Manual Codes :

CPI: C10-A13C C10-C02 C12-M11 C12-N10

Update Basic :

1977-36

Союз Советских
Социалистических
Республик



Государственный комитет
Совета Министров СССР
по делам изобретений
и открытий

О П И С А Н И Е ИЗОБРЕТЕНИЯ

К АВТОРСКОМУ СВИДЕТЕЛЬСТВУ

(61) Дополнительное к авт. свид-ву —

(22) Заявлено 23.01.74 (21) 1991549/23-26

с присоединением заявки № —

(23) Приоритет —

Опубликовано 15.01.76. Бюллетень № 2

Дата опубликования описания 31.12.76

(11) 499252

(51) М.Кл.² С 05С 9/00
С 05С 1/02

(53) УДК 631.841.7
(088.8)

(72) Авторы
изобретения

М. Н. Набиев, С. Тухтаев, Д. Х. Юнусов, А. Х. Нарходжаев,
Р. Ш. Камалова и К. Г. Бабуркин

(71) Заявитель

Институт химии АН Узбекской ССР

(54) СПОСОБ ПОЛУЧЕНИЯ НЕСЛЕЖИВАЮЩЕЙСЯ МОЧЕВИНЫ

1

Изобретение относится к способу получения неслеживающихся удобрений.

Известен способ получения неслеживающихся удобрений, например мочевины, путем покрытия гранул этих удобрений додецилбензолсульфонатом магния, который вводят в количестве 0,025—0,15% к весу мочевины. Наносимые пленки являются только покрытием, а для получения удобрения, содержащего регуляторы роста растений, требуется предварительная обработка.

Согласно изобретению в качестве покрытия применяют мелкодиспергированный раствор щавелевой кислоты концентрацией 30—35% в количестве 0,1—1,0% от веса мочевины при 90—100°C. Указанное отличие способствует получению комбинированного удобрения, содержащего функциональные группы ростовых веществ. При обработке гранул мочевины щавелевой кислотой образуется медленно растворимая пленка щавелево-кислого карбамида, предотвращающая слеживание мочевины.

2

Пример. На 300 г гранулированной мочевины с диаметром гранул 2 мм при интенсивном перемешивании с подачей горячего воздуха разбрызгивают пульверизатором в течение 6 мин 8 г 35%-ного раствора щавелевой кислоты при 95°C. Полученный продукт не гигроскопичен и не слеживается, обладает достаточной прочностью, стойкостью к истиранию и содержит функциональную группу ростовых веществ.

Формула изобретения

Способ получения неслеживающейся мочевины путем нанесения покрытий на поверхность гранул, отличающийся тем, что, с целью одновременного получения комбинированного удобрения, содержащего функциональные группы ростовых веществ, в качестве покрытий применяют мелкодиспергированный раствор щавелевой кислоты концентрацией 30—35%, в количестве 0,1—1,0% от веса мочевины при 90—100°C.

Appl No: 2003801104883
Your Ref: P19617CNPC/sko
Our Ref: CPCH0660979P

Text of the First Office Action

According to the description, the present application relates to a method of improving the properties of urea granules. After examination, the Examiner makes the following comments.

1. The technical solution claimed in claim 1 does not possess novelty as prescribed in Article 22, paragraph 2 of the Chinese Patent Law. Reference document 1 (SU 499252A) discloses a metaluminous urea and specifically discloses the technical feature of treating urea with oxalic acid to form a coated urea having an oxalic acid coating (see reference document 1: the abstract). The difference between the technical solution claimed in claim 1 and the contents disclosed in reference document 1 resides in that it is recited in claim 1 that “the additive comprises a carboxylic acid compound with the general formula $XY-(Z)-COOH$, in which Z is a saturated or unsaturated hydrocarbon with 1-25 carbon atoms and X and Y are selected from the group consisting of a hydrogen atom or a polar organic functional group”, while what is recited in reference document 1 is “oxalic acid ($COOH-COOH$)”. Nonetheless, said carboxylic acid compound is the generic concept of “oxalic acid ($COOH-COOH$)”. In addition, although the technical solution claimed in claim 1 differs from the contents disclosed in reference document 1 slightly in literal expression, one of skill in the art can conclude from general knowledge that they are essentially the same. Therefore, the technical solution claimed in claim 1 is not novel.

2. Claim 2 is a dependent claim of claim 1, and the additional technical feature in its characterizing portion is that “the polar solvent is water”. However, it is general knowledge in the art that a carboxylic acid compound is water soluble. It is thus evident that one of skill in the art could define the polar solvent as water on the premise that the properties

of urea will not be affected. Therefore, as long as claim 1 to which it refers is not novel, dependent claim 2 involves no inventive step as prescribed in Article 22, paragraph 3 of the Chinese Patent Law.

3. Claim 3 is a dependent claim of claim 1 or 2, and the additional technical feature in its characterizing portion is that “Z has 2-5 carbon atoms”. However, reference document 1 has disclosed that Z has one carbon atom and oxalic acid is capable of improving the properties of urea (see reference document 1: the abstract). Moreover, it is general knowledge in the art that carboxylic acid compounds having similar numbers of carbon atoms have similar properties. It is thus evident that one of skill in the art could substitute Z having 2-5 carbon atoms for Z having one carbon atom by employing conventional experimental means, on the basis of reference document 1. Therefore, as long as claim 1 or 2 to which it refers is not novel or involves no inventive step, dependent claim 3 involves no inventive step as prescribed in Article 22, paragraph 3 of the Chinese Patent Law.

4. Claim 4 is a dependent claim of claims 1-3, and its additional technical feature defines the polar organic functional group. However, reference document 1 has disclosed that the organic group is a hydroxyl group. Therefore, as long as claims 1-3 to which it refers are not novel or involve no inventive step, dependent claim 4 involves no inventive step as prescribed in Article 22, paragraph 3 of the Chinese Patent Law or does not possess novelty as prescribed in Article 22, paragraph 2 of the Chinese Patent Law.

5. Claim 5 is a dependent claim of claims 1-4, and its additional technical features are that “X is a hydrogen atom or a hydroxyl group and Y is a carboxylic acid group”. However, reference document 1 has disclosed oxalic acid, and it is general knowledge in the art that carboxylic acid compounds having similar numbers of carbon atoms have similar properties. It is thus evident that one of skill in the art could determine, on the basis of reference document 1, that X is a hydrogen atom or a

hydroxyl group and Y is a carboxylic acid group. Therefore, as long as claims 1-4 to which it refers are not novel or involve no inventive step, dependent claim 5 involves no inventive step as prescribed in Article 22, paragraph 3 of the Chinese Patent Law.

6. Claim 6 is a dependent claim of claims 1-5, and its additional technical feature is that “the aqueous solution has a concentration of 0.5-60 wt % of the carboxylic acid compound”. However, reference document 1 has disclosed an oxalic acid concentration of 30-50 %. Therefore, as long as claims 1-5 to which it refers are not novel or involve no inventive step, dependent claim 6 involves no inventive step as prescribed in Article 22, paragraph 3 of the Chinese Patent Law or does not possess novelty as prescribed in Article 22, paragraph 2 of the Chinese Patent Law.

7. Claim 7 is a dependent claim of claim 6, and its additional technical feature is that “the concentration is 5-30 wt %”. However, reference document 1 has disclosed an oxalic acid concentration of 30-50 %. Therefore, as long as the claim to which it refers is not novel or involves no inventive step, dependent claim 7 involves no inventive step as prescribed in Article 22, paragraph 3 of the Chinese Patent Law or does not possess novelty as prescribed in Article 22, paragraph 2 of the Chinese Patent Law.

8. The additional technical feature of dependent claim 8 is the concentration of the carboxylic acid compound based upon the weight of urea. However, reference document 1 has disclosed that the amount of oxalic acid is 0.1-1 wt % based on the weight of urea. Upon conversion, it can be seen that reference document 1 has disclosed the numerical range in the additional technical feature. Therefore, as long as the claims to which it refers are not novel or involve no inventive step, dependent claim 8 involves no inventive step as prescribed in Article 22, paragraph 3 of the Chinese Patent Law or does not possess novelty as prescribed in Article 22, paragraph 2 of the Chinese Patent Law.

9. The additional technical feature of dependent claim 9 is the temperature of urea during the addition of the aqueous solution. However, reference document 1 has disclosed that the temperature of urea is from 90 to 100 °C. Thus it can be seen that reference document 1 has disclosed the numerical range in the additional technical feature. Therefore, as long as the claims to which it refers are not novel or involve no inventive step, dependent claim 9 involves no inventive step as prescribed in Article 22, paragraph 3 of the Chinese Patent Law or does not possess novelty as prescribed in Article 22, paragraph 2 of the Chinese Patent Law.

10. The technical solution claimed in claim 10 does not possess novelty as prescribed in Article 22, paragraph 2 of the Chinese Patent Law. Said claim claims a carboxylic acid compound. Reference document 2 (US 3802903A) discloses citric acid (see the whole reference document 2). The only difference between the technical solution claimed in claim 10 and the contents disclosed in reference document 1 resides in that it is recited in claim 10 that “the compound has the general formula $XY-(Z)-COOH$, in which Z is a saturated or unsaturated hydrocarbon with 1-25 C-atoms, and X and Y are selected from the group consisting of a hydrogen atom or a polar organic functional group”, while what is recited in reference document 2 is “citric acid”. Nonetheless, said compound is the generic concept of “citric acid”. Therefore, the technical solution claimed in claim 10 is not novel.

If the applicant amends claim 10 by adding a disclaimer, the novelty deficiency of claim 10 will still not be removed, because various carboxylic acid compounds of the general formula $XY-(Z)-COOH$, such as maleic acid and malic acid, have been disclosed in the prior art.

11. The additional technical features of claims 11-13 have all been disclosed in reference document 2. Therefore, as long as the claims to which they refer are not novel, dependent claims 11-13 do not possess novelty as prescribed in Article 22, paragraph 2 of the Chinese Patent Law.

12. Claim 14 fails to clearly show which claims the expression “preceding claims” means. Moreover, the concept “composition” is not present in any one of the preceding claims. Therefore, claim 14 does not have a clear protection scope and does not conform to the provision of Rule 20, paragraph 1 of the Implementing Regulations of the Chinese Patent Law.

For the above reasons, the present application is not patentable. Moreover, the description of the present application does not disclose any material contents for which a patent right may be granted. Therefore, even if the application document is amended, the present application will still have no prospect of being granted a patent right. If the applicant is not able to given convincing arguments within the time limit set for reply in this Office Action, the present application will be rejected.

Patent Office of the People's Republic of China

Address : Receiving Section of the Chinese Patent Office, No. 6 Tucheng Road West, Haidian District, Beijing. Postal code: 100088

Applicant	YARA INTERNATIONAL ASA			Seal of Examiner	Date of Issue
Agent	China Patent Agent (H.K.) Ltd.				April 20, 2007
Patent Application No.	200380110488.3	Application Date	October 6, 2003	Exam Dept.	
Title of Invention	A METHOD OF IMPROVING THE PROPERTIES OF UREA GRANULES				

First Office Action

(PCT application entering into the national phase)

1. ☒ Under the provision of Art. 35, para. 1 of the Patent Law, the examiner has made an examination as to substance of the captioned patent application for invention upon the request for substantive examination filed by the applicant.
- ☐ Under the provision of Art. 35, para. 2 of the Patent Law, the Chinese Patent Office has decided to conduct an examination of the captioned patent application for invention on its own initiative.
2. ☐ The applicant requests that
the filing date _____ at the _____ Patent Office be taken as the priority date of the present application,
the filing date _____ at the _____ Patent Office be taken as the priority date of the present application,
the filing date _____ at the _____ Patent Office be taken as the priority date of the present application.
3. ☐ The following amended documents submitted by the applicant cannot be accepted for failure to conform with Art. 33 of the Patent Law:
☐ the Chinese version of the annex to the international preliminary examination report.
☐ the Chinese version of the amended documents submitted according to the provision of Art. 19 of the Patent Cooperation Treaty.
☐ the amended documents submitted according to the provision of Art. 28 or Art. 41 of the Patent Cooperation Treaty.

☐ the amended documents submitted according to the provision of Rule 51 of the Implementing Regulations of the Patent Law.

See the text portion of this Office Action for detailed reasons why the amendment cannot be accepted.

4. ☒ Examination is conducted on the Chinese version of the initially-submitted international application.

☐ Examination is conducted on the following document(s):

☐ page _____ of the description, based on the Chinese version of the initially-submitted international application documents;

page _____ of the description, based on the Chinese version of the annex to the international preliminary examination report;

page _____ of the description, based on the amended documents submitted according to the provision of Art. 28 or Art. 41 of the Patent Cooperation Treaty;

page _____ of the description, based on the amended documents submitted according to the provision of Rule 51 of the Implementing Regulations of the Patent Law.

☐ claim(s) _____ , based on the Chinese version of the initially-submitted international application documents;

claim(s) _____ , based on the Chinese version of the amended documents submitted according to the provision of Art. 19 of the Patent Cooperation Treaty;

claim(s) _____ , based on the Chinese version of the annex to the international preliminary examination report;

claim(s) _____ , based on the amended documents submitted according to the provision of Art. 28 or Art. 41 of the Patent Cooperation Treaty;

claim(s) _____ , based on the amended documents submitted according to the provision of Rule 51 of the Implementing Regulations of the Patent Law.

☐ Fig(s) _____ , based on the Chinese version of the initially-submitted international application documents;

Fig(s) _____ , based on the Chinese version of the annex to the international preliminary examination report;

Fig(s) _____ , based on the amended documents submitted according to the provision of Art. 28 or Art. 41 of the Patent Cooperation Treaty;

Fig(s) _____ , based on the amended documents submitted according to the provision of Rule 51 of the Implementing Regulations of the Patent Law.

5. ☒ The following reference documents are cited in this Office Action (their serial

numbers will continue to be used in the subsequent course of examination):

Serial No.	Number or Title(s) of Document(s)	Date of Publication (or filing date of interfering application)
1	SU 499252A	December 30, 1976
2	US 3802903A	April 9, 1974
3		
4		

6. Concluding comments on the examination:

☐ On the description:

- ☐ What is stated in the application comes within the scope of that no patent right shall be granted as prescribed in Art. 5 of the Patent Law.
- ☐ The description is not in conformity with the provision of Art. 26, para. 3 of the Patent Law.
- ☐ The description is not in conformity with the provision of Art. 33 of the Patent Law.
- ☐ The drafting of description is not in conformity with the provision of Rule 18 of the Implementing Regulations.

☒ On the claims:

- ☐ Claim(s) _____ come(s) within the scope of that no patent right shall be granted as prescribed in Art. 25 of the Patent Law.
- ☒ Claims 1, 4, 6-9, 10-13 have no novelty as prescribed in Art. 22, para. 2 of the Patent Law.
- ☒ Claims 2-9 have no inventiveness as prescribed in Art. 22, para. 3 of the Patent Law.
- ☐ Claim(s) _____ has/have no practical applicability as prescribed in Art. 22, para. 4 of the Patent Law.
- ☐ Claim(s) _____ is/are not in conformity with the provision of Art. 26, para. 4 of the Patent Law.
- ☐ Claim(s) _____ is/are not in conformity with the provision of Art. 31, para. 1 of the Patent Law.
- ☒ Claim 14 is not in conformity with the provisions of Rule 20 of the Implementing Regulations.
- ☐ Claim(s) _____ is/are not in conformity with the provision of Art. 9 of the Patent Law.
- ☐ Claim(s) _____ is/are not in conformity with the provision of Rule 23 of the Implementing Regulations.

See the text portion of this Office Action for detailed analysis of the above concluding comments.

7. Based on the above concluding comments, the examiner deems that

- ☐ the applicant should make amendment to the application document(s) according to the requirements put forward in the text portion of this Office Action.
- ☐ the applicant should expound in his/its observations why the captioned patent application is patentable and make amendment to what is not in conformity with the provisions pointed out in the text portion of this Office Action, otherwise, no patent right shall be granted.
- ☒ the patent application contains no substantive content(s) for which a patent right may be granted, if the applicant has no sufficient reason(s) to state or his/its stated reason(s) is/are not sufficient, said application will be rejected.

8. The applicant should note the following items:

- (1) Under Art. 37 of the Patent Law, the applicant should submit his/its observations within **four** months from the date of receipt of this Office Action; if, without any justified reason(s), the time limit for making written response is not met, said application shall be deemed to have been withdrawn.
- (2) The amendment made by the applicant to said application should be in conformity with the provision of Art. 33 of the Patent Law, the amended text should be in duplicate and its form should conform with the related provisions of the Guide to Examination.
- (3) If no arrangement is made in advance, the applicant and/or the agent shall not come to the Chinese Patent Office to have an interview with the examiner.
- (4) The observations and/or amended text should be sent to the Receiving Section of the Chinese Patent Office by mail or by personal delivery, if not sent to the Receiving Section by mail or by personal delivery, the document(s) will have no legal effect.**

9. This Office Action consists of the text portion totaling 5 pages and of the following attachment(s):

- ☒ 1 copy of the reference documents totaling 4 pages.

Examination Dept. No. _____

Examiner _____

9016